

Europe: the contribution of bioenergy



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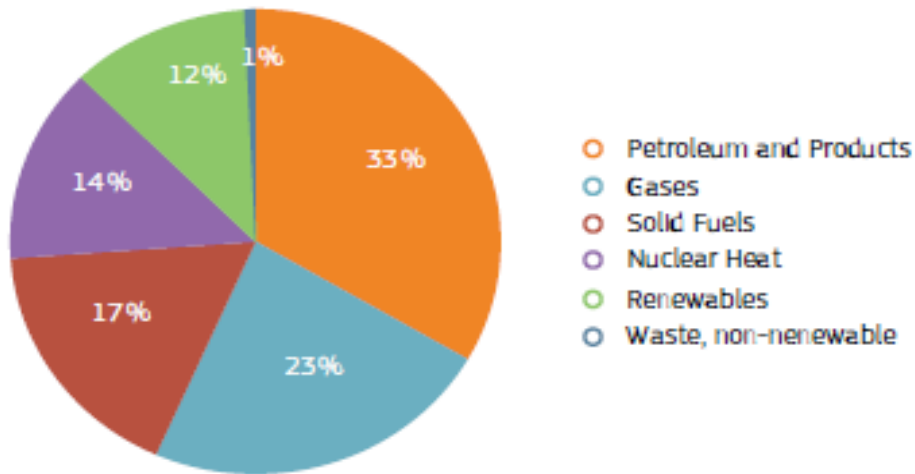
Vienna, 2 March 2016

- **Overview**
- **Examples**
- **Conclusions**



Eu primary energy supply: 1665 Mtoe (2013)

TOTAL PRIMARY 2013: 1665 Mtoe
(Total Primary and Secondary 2013: 1666 Mtoe)



12% RES equals 192 Mtoe
Hereof bioenergy 123 Mtoe
That is 62%!

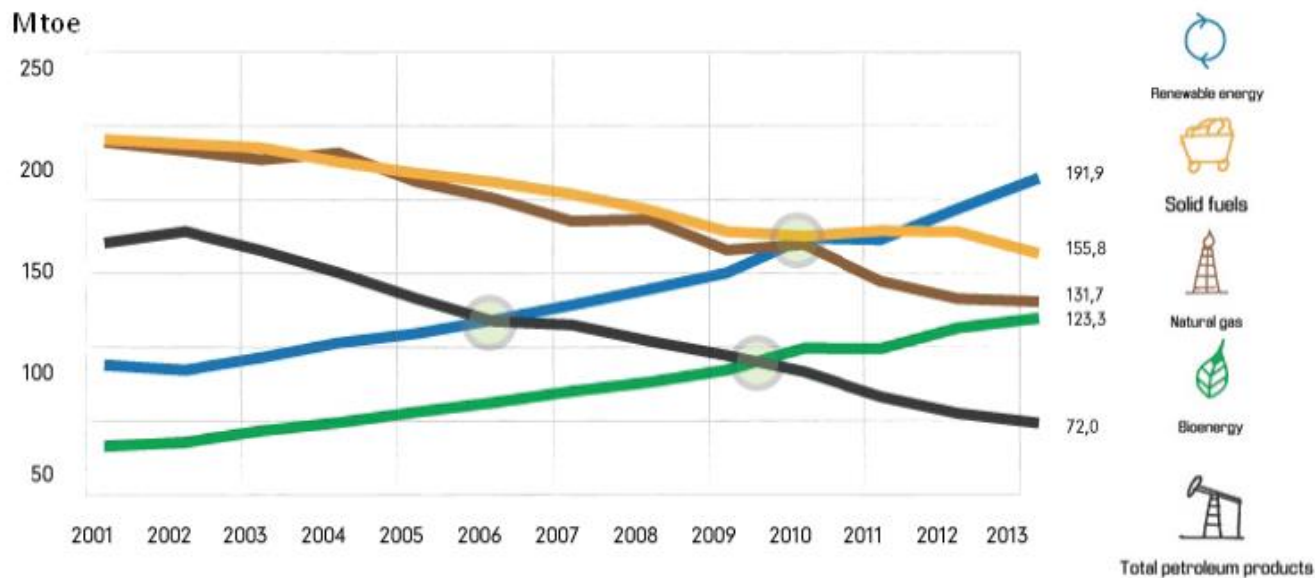
Source: EU pocket book on stat.



EU: indigenous energy supply 2001 – 2013

coal, gas, oil declining; bioenergy and other RE growing! Bioenergy from 70 to 123 Mtoe!

EU28 Primary Energy Production by Fuel (in Mtoe)



Source: Eurostat

Source: AEBIOM statistics 2014



EU potential of biomass for energy (up to 220 -250 Mtoe)

Source OK forest research carbon impacts of biomass use in the eu

Figure 3.5 and Table 3.6 show the estimated biomass potentials for the EU27 region for the six scenarios for different years.

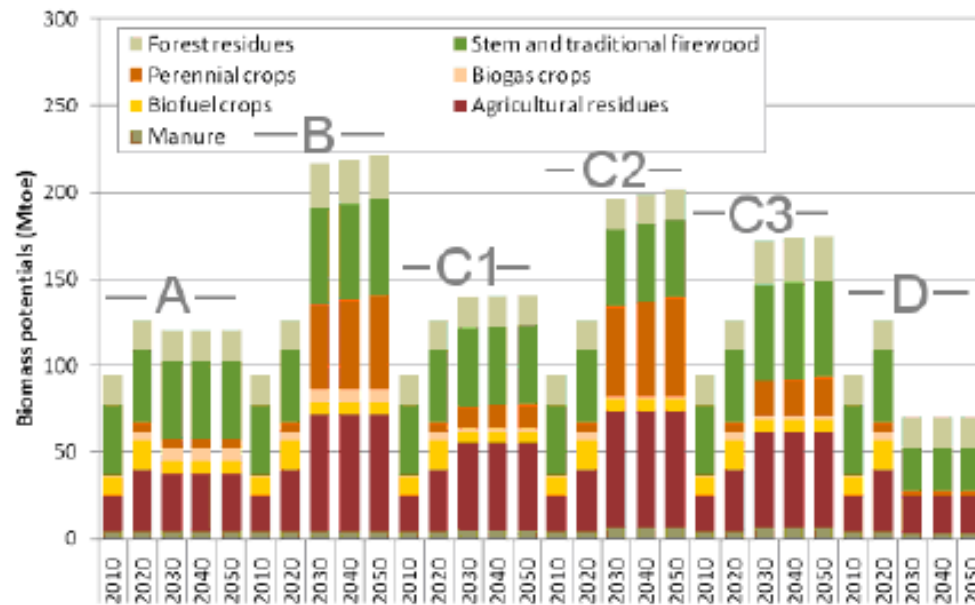
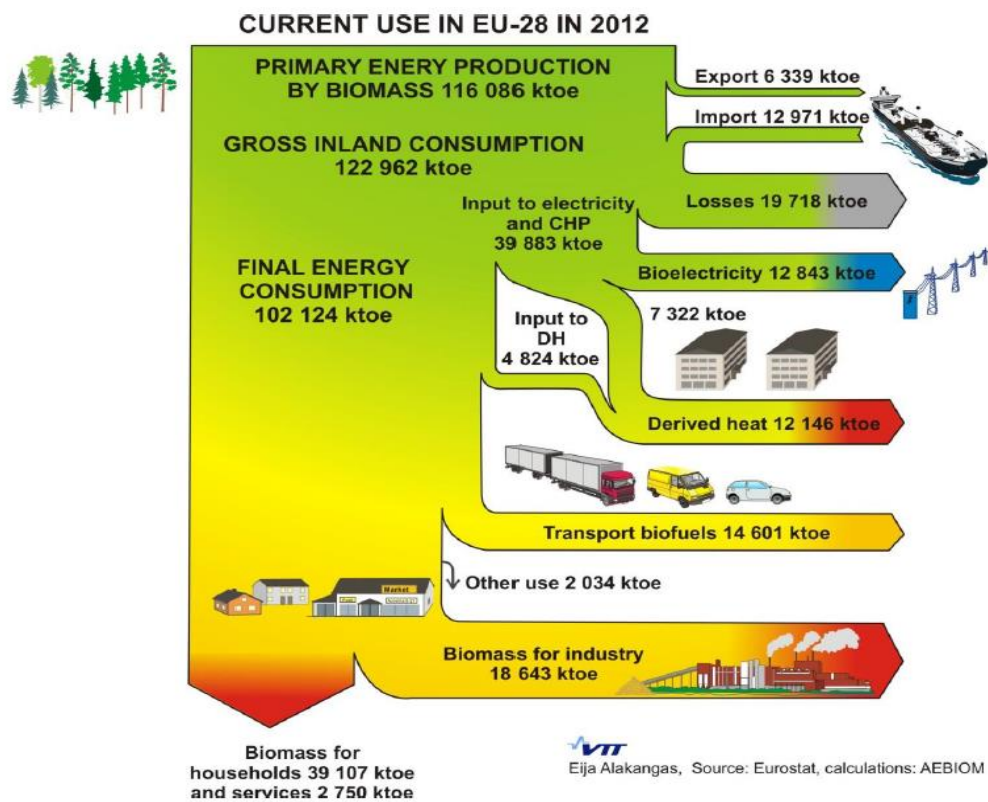


Figure 3.5. Biomass potentials and sources for bioenergy in the EU27 under different scenarios.



The use of biomass for energy (EU, 2012)

Figure 0.3 Bioenergy balance in 2012 (ktoe)



Direct use and transformation
Sector: electricity, CHP,
District heat

Gross inland c.: 123 Mtoe

For transformation: 40 Mtoe

electr. and CHP: losses 19,7

electr. 12,9

heat 7,4

For district heat, others: **6,8**

For direct use:

HH, service, industry: 60,6Mtoe

Transport: 15 Mtoe

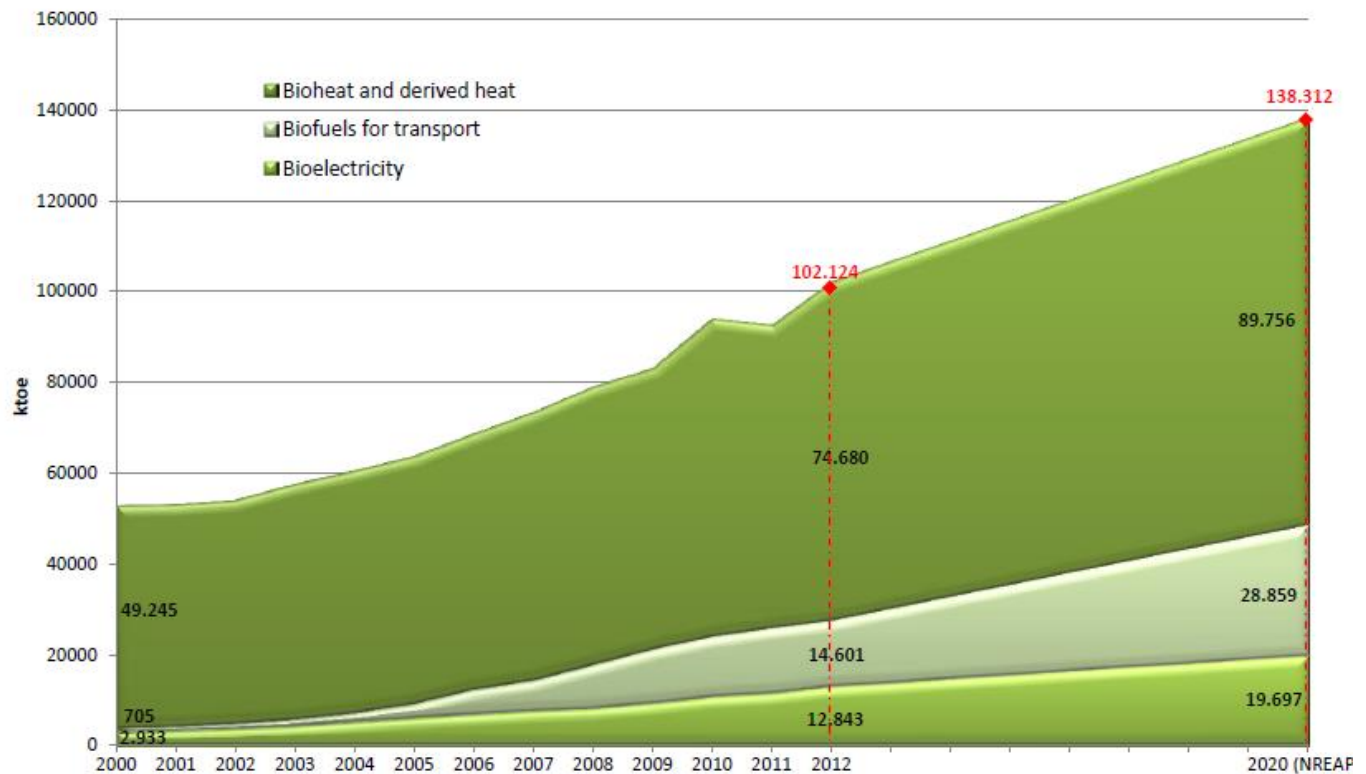


Bioenergy for final use based on RENAPs

main share Heat, followed by transport fuels and y elect. Target 2020: 138 Mtoe

Source: Eurostat September 2014, AEBIOM calculation

Figure 0.5 Final energy consumption of bioenergy 2000-2020 in Europe*



EU biofuel consumption 2005 – 2013 - 2023

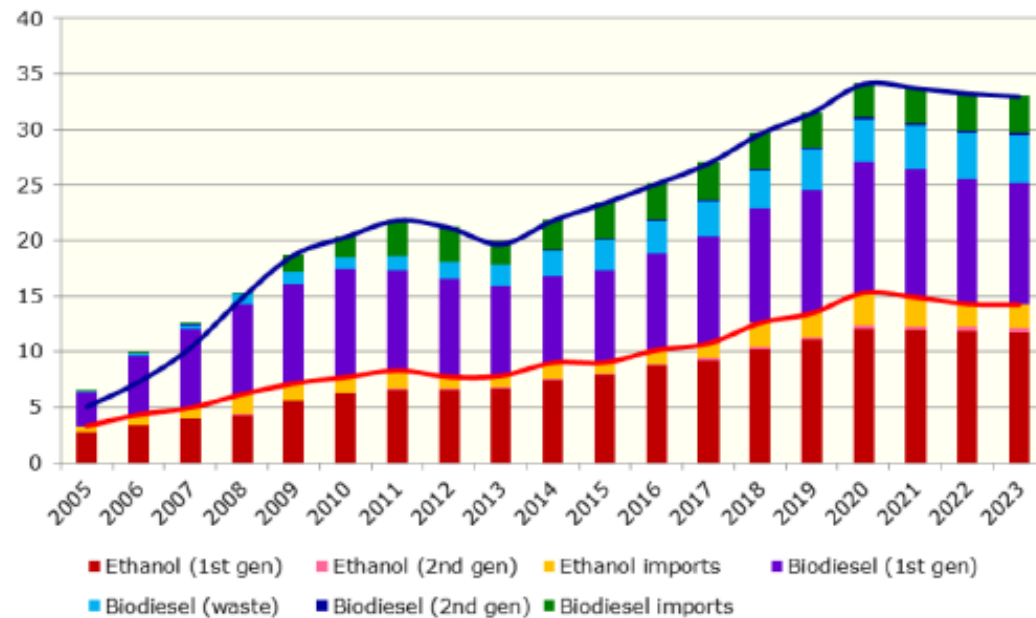


Figure 3.4. EU biofuel consumption by source in Mtoe (Source: European Commission, 2013).

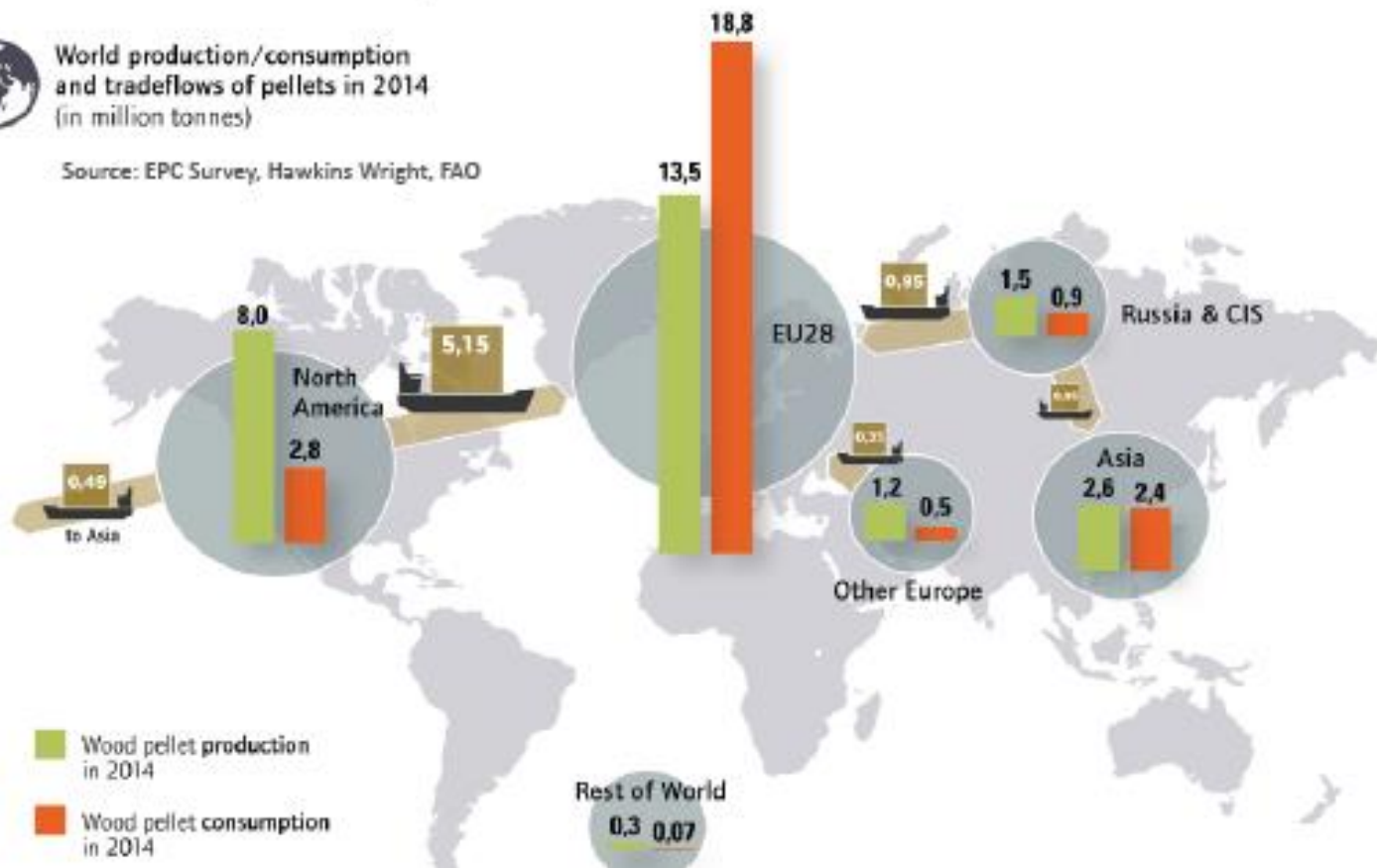


The global pellet market



World production/consumption and trade flows of pellets in 2014 (in million tonnes)

Source: EPC Survey, Hawkins Wright, FAO



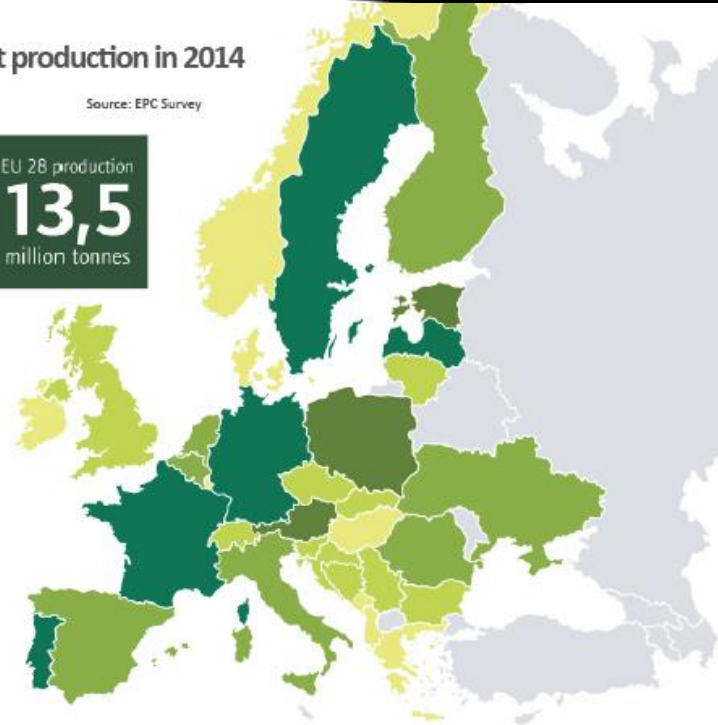
EU: pellet production for heat

European wood pellet production in 2014

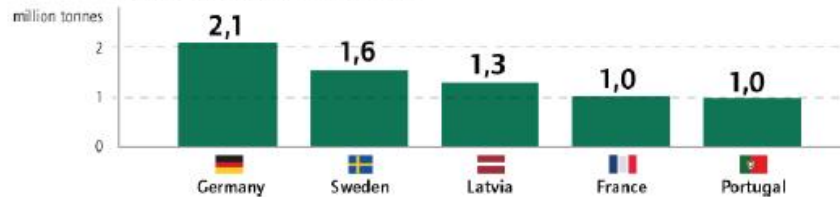
Source: EPC Survey

EU 28 production
13,5
million tonnes

Actual production [in tonnes]



Production in top 5 EU28 countries

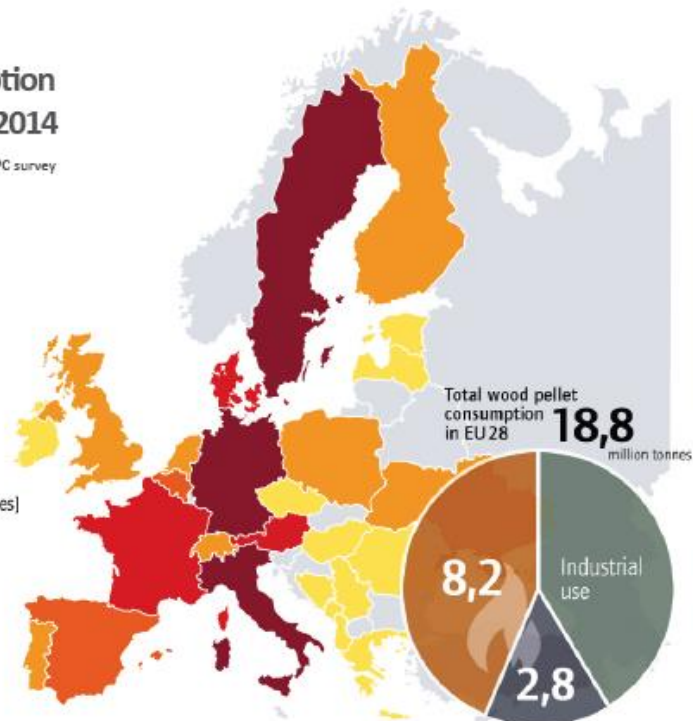


EU pellets consumption for heat

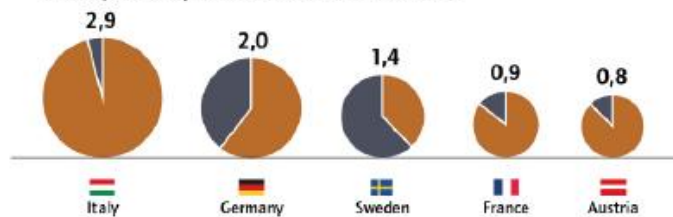
Wood pellet consumption for heating in Europe 2014

Source: EPC survey

Actual consumption [in tonnes]



Consumption in top 5 EU28 countries (in million tonnes)



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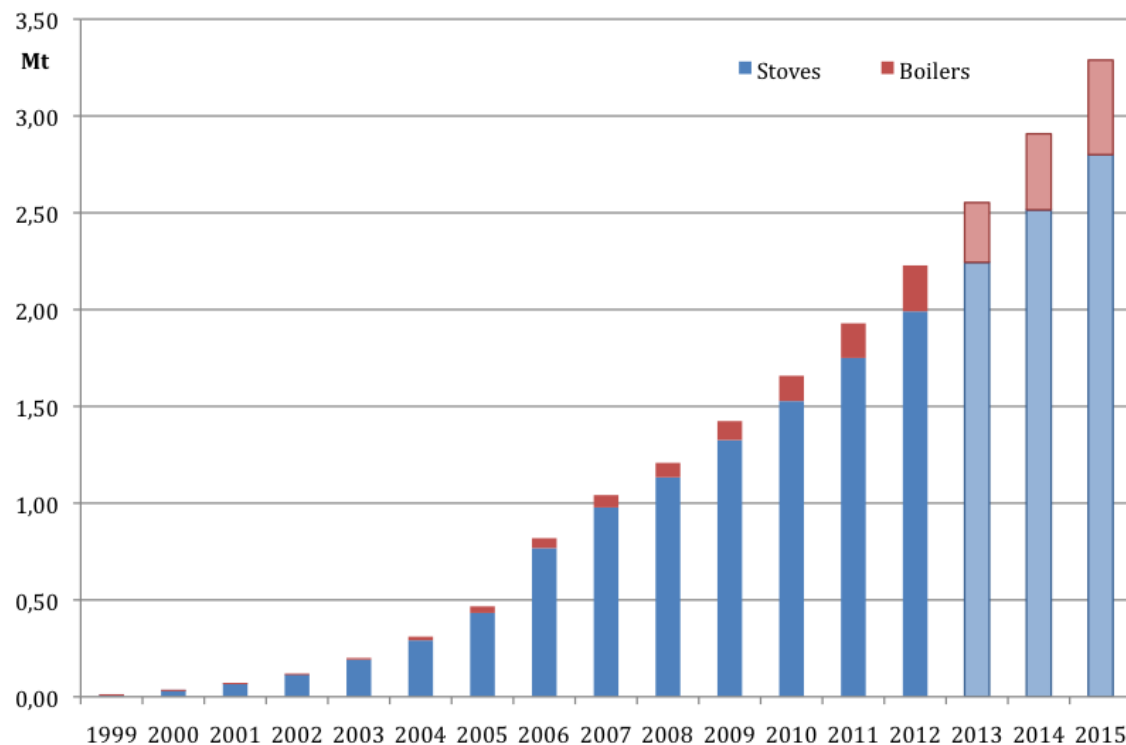


Italy: the most dynamic European pellets market

Reference: A. Paniz and L. Pau, AIEL, presentation Jan. 2014 bioenergy Graz

Consumption 2012: 2.2 million tons,
annual growth 200 – 300.000 tons, 90% stoves, 10% boilers

Annual growth rate 2003 -2013: 29%



Italy: the transformation of the heat market

- *Italy demonstrates how a strong and dedicated government policy leads to a transformation of the heat market towards renewables!*



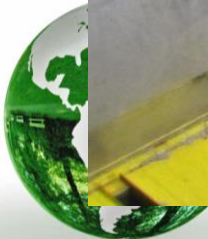
Pécs: woody biomass











Péc: straw logistics

To organize the supply they have

- 30 integrators (large farmers, store the bales) each has ca
- 40 subcontractors (farmers to deliver) on the basis of longrun contracts with prices that change with an index. Total equipment – balers – loaders – trucks – had to be standardized
- Storage at the plant only for 4 days
- 6 years work to developpe, convince etc.



Pécs: first conclusion

- Pécs, the first green city of Hungary, produces more heat and electricity from biomass than they need: 100% renewable heat and electricity
- They use 3% of the straw produced in their sourcing area
- There is potential for further development in the future: biofuels, integration with other RES!



Corn cobs as new feedstock for heating plants or other purposes: ca 600l oil equivalent per ha!



Adapted combine – deloading 2 tons 'corn cobs'



Energy crops to produce solid biomass are slowly gaining ground:
Here: harvest of a Short rotation willows in Styria, Austria





**Bioenergy in 3 different countries with 8 – 10 mio people:
Hungary, Sweden, Austria**



Overview: renewables, bioenergy and arable land

*In Hungary, bioenergy dominates among RES,
Compared to the the other countries, Austria and Sweden, the contribution
of bioenergy is rather small..*

	Renewables ktoe	Bioenergy ktoe
Hungary	1.960	1.764
Austria	9.620	5.408
Sweden	18.500	11.094



District heat, land resources

In Sweden biomass for district heat (derived heat) plays an exceptional Role, also in Austria highly developed, Hungary rather modest.

	Bioenergy District heat in ktoe
Hungary	59
Austria	914
Sweden	2.356



Consumption of biofuels

Consumption of biofuels in HU is rather modest, strong in Sw, also Austria
Nearly 6% of transport demand: Special case: biogas for transport in Sweden!
- Public busses, part of gv policy to make Sweden fossil fuel free!

	TOTAL	biogas	ethanol	biodiesel
Hungary	155	0	52	103
Austria	479	0,1	68	411
Sweden	588	70	206	313



- **Overview**
- **Examples**
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A few conclusions

- Big potential of biomass for energy
- How to develop the potential for heat supply?
 - Taxation (Sweden, Italy)
 - Support by government grants to companies and individuals (Italy, Austria, UK)
 - Cheap loans alone is not enough!

The electricity issue: feed in tariffs only for cogeneration, can become an expensive solution!

Controversial issues: sustainability, carbon neutrality,



New challenges: oil price, Paris agreement

- Low oil prices hurt the bioenergy sector, we need a CO2 taxation, 100 Euro per ton (Sweden, France)
- Paris offers new challenges, no fossil fuels within 30 years!! Bioenergy will be the cornerstone of a fossil free system with a share of 20 to 30% of the total supply, mainly for heat and transport.
- Biomass is the cheapest energy storage; a combination of wind, PV and biomass, in some countries hydro and geothermal will be the backbone of the future energy system.
- Potential is huge, technologies are available, we need a reliable straightforward policy!
- **THANK YOU!**



To cope with this challenge:

join the World Bioenergy Association (WBA)



WORLD BIOENERGY
ASSOCIATION



Member of the REN-Alliance



WBA: How we work?

- **Office** in Stockholm, Sweden
- **Our board:** 22 members from 5 continents (Africa 4, Americas 6, Asia 6, Australia 1, Europe 5)
- **Our members:** companies, associations, individuals from all over the world
- **Main issues:** biomass potential, sustainability of biomass, small scale heat with biomass, combined heat and power, future of biofuels, carbon neutrality of biomass, bioenergy statistics
- **Main activities:** fact sheets, projects, position papers, presentations in conferences and workshops, supporting biomass trade with the platform: bioenergy connect (BC)

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